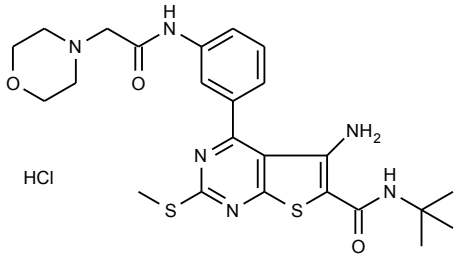
BDG SYNTHESIS

Certificate of Analysis

BDG Synthesis certifies that this reference material meets or exceeds the specifications stated herein.

Barry Dent

Barry R. Dent, PhD, Director
14 April 2010

Name:	**Org 43553 HCl**
CAS Number:	501444-88-8 (free base)
Structure:	
Molecular Weight:	$C_{24}H_{30}N_6O_3S_2 \cdot HCl = 551.12$
Lot Number:	BDG 10739.1
Appearance:	Bright yellow, crystalline solid
Corrected Purity:	99.3 % (HPLC) - 7.4 % (water) = 91.9 %
Re-test Date:	14 April 2011

Storage and Handling:

Temperature:	ambient laboratory temperature; may be refrigerated.
Humidity:	may be hygroscopic; store desiccated; recommended to determine water content periodically.
Light:	protect from strong sunlight.
Caution:	only experienced laboratory personnel should handle the material.

Mailing:
BDG Synthesis
PO Box 38 627, Wellington Mail Centre,
Wellington, New Zealand.

Shipping:
BDG Synthesis
Gracefield Research Centre, Building F,
Gracefield Road, Lower Hutt, New Zealand.

Phone: + 64 4 569 0520
Fax: + 64 4 569 0521

info@bdg.co.nz
www.bdg.co.nz

Identity and Purity

Proton NMR Spectrum

Identity: the signals are consistent with the proposed structure and in accord with literature where available.
Residual Solvents: no residual solvents are observed.
Impurities: no significant impurities are evident in the spectrum.

Carbon-13 NMR Spectrum

Identity: the signals are consistent with the proposed structure and in accord with literature where available.

High-resolution Mass Spectrum (ESI+)

Found *m/z* 537.1705. $C_{24}H_{30}N_6NaO_3S_2$ $[M+Na]^+$ requires *m/z* 537.1713. The deviation of 1.4 ppm is within normally accepted limits for the establishment of identity by HRMS.

HPLC

A sharp, slightly tailing peak is observed (99.3 %). Note: in the absence of reference materials for preparing calibration curves, it is assumed that all peaks have the same detector response. Where possible, the conditions of analysis follow a pharmacopeial or literature method, or have been adapted from same.

Elemental Analysis

	Found:	C 48.80, H 5.78, N 14.24 %
$C_{24}H_{30}N_6O_3S_2{\cdot}HCl{\cdot}2.3H_2O$	Requires:	C 48.65, H 6.06, N 14.18 %
$C_{24}H_{30}N_6O_3S_2{\cdot}HCl$	Requires:	C 52.30, H 5.67, N 15.25 %

The elemental analyses fall substantially outside those expected for anhydrous material; the presence of water is reasonably expected from the method of purification and/or the type of material, and the “best-fit” hydrated molecular formula is given.

Karl-Fischer Analysis

	Found:	H_2O 7.4 %
$C_{24}H_{30}N_6O_3S_2{\cdot}HCl{\cdot}2.3H_2O$	Requires:	H_2O 7.0 %

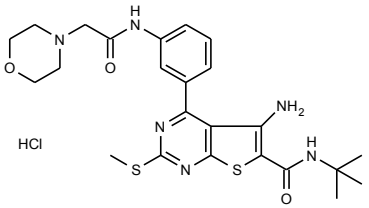
Of necessity, only a small sample could be used and only a single or duplicate analysis performed. We are unable to state what the errors in the reported water content are, but recommend that the result be used, as the best available, when determining corrected purity.

The available quantity of custom-synthesised material is always small, and this limits the extent and type of analytical data which can be obtained. This Certificate is presented in descriptive format for use by analytical chemists who are trained in the use of custom-synthesised materials. Custom materials often contain higher levels of residual solvents and/or water, and we urge you to use the corrected purity where needed rather than the raw HPLC purity. This compound is intended for use as an analytical reference material and it is not for human administration. Structures are shown with relative stereochemistry unless otherwise specified.

The re-test date is assigned from experience gained with the material in the laboratory and/or on storage. It is not possible to perform formal storage studies because of the small amount of material available.

BDG SYNTHESIS

Proton NMR Spectrum of Org 43553 HCl in DMSO-d_6



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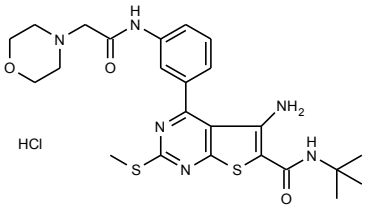
BDG SYNTHESIS

Carbon-13 NMR Spectrum of Org 43553 HCl in DMSO-d_6

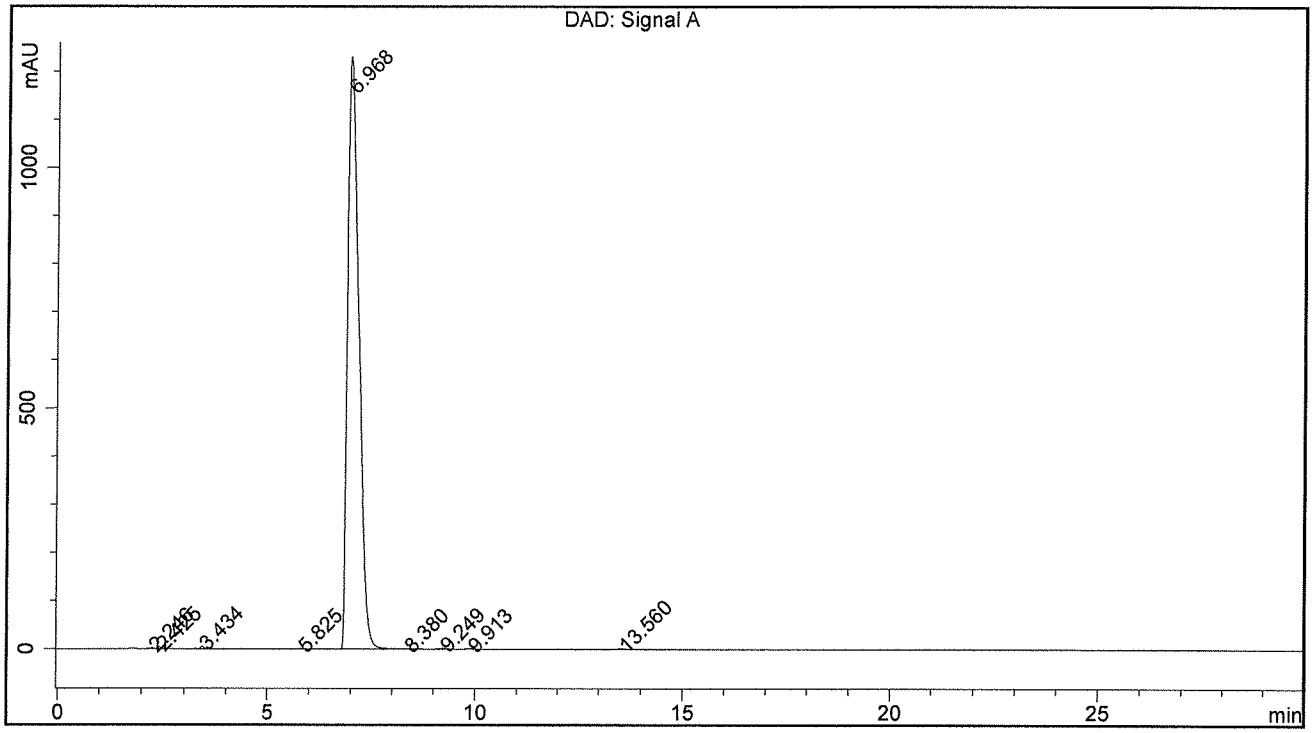


Lot Number: BDG 10739.1

BDG - Analysis of Org 43553 HCl

Column : Phenomenex Luna C18(2) 5um 250 x 4.6 mm
Guard : Phenomenex Security Guard C18 RP 4 x 3 mm
Mobile Phase : 60:40 Water : Acetonitrile + 0.01% Trifluoroacetic Acid
Flow Rate : 1.0 mL/min
Sample Solvent : 3:7 Water : Acetonitrile
Column Temperature : 20C
Injection Volume : 10 uL
Detection : UV at 302 nm

Sample Name	BDG 10739.1	**Instrument**	AnalyticalLC01
Acquisition	14/04/2010, 17:07:58	**Method (rev.)**	LC10375a (10)
Sequence	BDG_14Apr2010e - Reprocessed	**Vial Position**	1
Operator	solvation010\cerityadmin	**Injection**	1 of 1



Area Percent Report

Peak#	RT	Peak Height	Peak Area	Width	Area %
1	2.25 min	2.2477	18.1594	0.1183 min	0.077 %
2	2.43 min	3.8989	19.5338	0.0825 min	0.083 %
3	3.43 min	5.3751	35.6294	0.1013 min	0.151 %
4	5.82 min	1.0228	10.0940	0.1551 min	0.043 %
5	6.97 min	1231.5943	23395.1710	0.2896 min	99.328 %
6	8.38 min	0.5164	12.2735	0.3373 min	0.052 %
7	9.25 min	1.5842	23.5952	0.2298 min	0.100 %
8	9.91 min	0.6739	10.2827	0.2340 min	0.044 %
9	13.56 min	1.3833	28.6297	0.3135 min	0.122 %